

fall examinations which occur in the months of September and October will be furnished on request after July 15. Those who desire to take the spring examinations for observer in the Weather Bureau should apply before April 15 to the Civil Service Commission for a copy of the general application blank, Form 304.

The Editor sees no reason why the public high schools and State colleges throughout the land should not make it their duty to teach enough science and modern languages to enable their graduates to pass these and the other examinations that are prescribed by the Civil Service before one can fill the higher positions in the Governmental service. The National Government has a right to look to those colleges, universities, and scientific schools *that have been founded or fostered by its benevolence* to provide the education needed by those who have to prosecute its work.

As a university is a collection of colleges and faculties under one general organization, so our national "University of the United States" must be nothing less than this collection of fifty or sixty State institutions that have directly or indirectly received aid from the National Government. If the intellectual and educational status of these so-called State institutions were to be submitted to the general oversight of the proper federal officer, in order to bring them all up to the required standard, as is now done with regard to the financial status of the Agricultural experiment stations, we should soon realize one of the ideals that so many have been looking for.

#### PROMOTION FOR MERIT.

That the Honorable the Secretary of Agriculture heartily approves of the efforts of the Chief of the Weather Bureau to maintain the service in a high state of efficiency is in no way more thoroughly shown than by his recent letter announcing that "preferment in this Bureau will be made only in recognition of merit and special fitness." The letter was printed in full for the use of Weather Bureau officials in Instructions No. 18 of 1898; but the following paragraphs seem worthy of reproduction in the MONTHLY WEATHER REVIEW:

Often the saving of hundreds of lives and the protection to millions of dollars' worth of property depend upon the alertness, scientific training, and executive ability of both subordinates and controlling officials of the Weather Bureau. When efficiently officered, this service is of such utility to the commerce and industry of the country that I wish it to be distinctly understood that preferment in this important Bureau of the Department of Agriculture will be made only in recognition of merit and special fitness. In this way, and in this way only, can the Department meet the demands that are made upon the weather service and maintain the high standard required of its officials. The Department is frequently annoyed and embarrassed by letters and petitions from extraneous sources, as in your case, which are inspired by employees seeking advancement to positions which they may not be qualified to fill or to which other employees of greater ability are more eligible.

The Chief of the Weather Bureau, having a complete record of the work performed by each employee therein, is better able to determine the fitness of officials for advancement and assignment than are those not familiar with the details of the service, no matter how much the latter may have the welfare of the public service at heart.

The annoying of United States Senators, Representatives, and other distinguished persons, or representative commercial bodies, with selfish importunities is to be deprecated, and will militate against the persons who may employ, encourage, or countenance such action. Officials of the Weather Bureau are expected to have the confidence and respect of prominent representative men in their localities, and it will at all times be pleasing to receive evidences of efficiency on the part of Weather Bureau officials and of the value of their service to the public; but such testimonials must not be the result of promptings or importunities of the employee interested.

You are an observer with a fair record in one of the minor grades. Were you to succeed in effecting your promotion to the grade of Section Director over the heads of many officials of higher rank and superior qualifications, the same line of procedure might in course of time be exercised to your personal detriment and some other official displace you by the same method. If you have merit, it will be

recognized in due course of time as the needs of the service render possible and as the comparative merits of your coworkers render practicable and just.

#### AN AMERICAN METEOROLOGICAL SOCIETY.

In order to advance the interests of any enterprise it is common to form an association and hold regular meetings for discussing the subject. Many societies, academies, and associations have thus contributed to the development of science, but it would be unfair to say that these have done more for science than has been done by individual efforts, or by the influence of universities and scientific schools. The formation of a voluntary association of individuals implies that there is a common need, and that the association can subserve the common interest. It would not be wise to add to the scientific organizations or to the scientific periodicals at present existing, unless there be a reasonable prospect of accomplishing something desirable that is not done by the existing institutions.

So far as concerns meteorology and climatology there are doubtless many features whose development can be especially furthered by local clubs, each of these to embrace the few persons who are especially interested in such matters, and can easily meet together or correspond with each other. Thus a club of three or four in any city or university could cooperate in investigating local clouds, auroras, thunderstorms, frost, hail, the vertical distribution of temperature, and numerous other local problems. A group of a half dozen or more stations within a few miles of each other could, by maintaining the most delicate self-recording apparatus, determine on the one hand the nature, origin, and movement of the sudden variations of the barometer and their connection with gusts of wind and falling rain, and on the other hand the relations in general between the wind directions and the isobars at that spot on the earth's surface. Pairs of observers, at high and low stations, could investigate the weight of the intermediate column of air and its relation to the observed pressures, temperatures, and moisture; two cloud observers, or photographers, and one kite flyer could, by preconcerted action, determine the altitude and details of the clouds and their relations to sunshine and the temperature and moisture of the layers of air in their neighborhood. The relation of local climate to any special crop is another matter of very special investigation, but the general laws that result therefrom must interest the whole scientific world. These little clubs of interested students represent narrow specialties, matters of which a general association may take cognizance, but to which it should not be confined.

If there is to be a general meteorological society it would be best to have its membership include all America, i. e., the United States and Canada, and as far as possible Mexico, the West Indies, and Central America, since every part of this great region is mutually interested in the weather and the climate of the other parts. Moreover, the storms, the northerners, the cold waves, the hot waves, the rains, and the general peculiarities of the successive seasons can be properly studied only when we take cognizance of a very large region of atmosphere. But of course an association that covers so large an area can at the best have only an annual or triennial meeting; the interest of the members in each other's work and in the general progress of meteorology must, necessarily, be kept up by means of an efficient meteorological journal whose expenses must be wholly defrayed by the society. There are few, if any, scientific journals whose subscription lists defray anything more than a small portion of the expense, to say nothing of the salary of the editor. The percentage of self-sustaining journals is even less than the percentage of books that pay the authors an appreciable income, and yet we print books and sell them

and buy them, for we must have them to read and study. It would seem that it is impossible to repay an author, in money, for the intellectual labor expended upon his investigation, essay, memoir, or volume. Equally is it impossible for the reader to make a financial estimate of the intellectual stimulus and mental food that he receives by reading the book. Our modern intellectual and scientific life is above all financial and even utilitarian ideas. Money is very convenient as a medium of exchange in buying and selling ponderable matter, but it has no more definite relation to intellectual attainments than it has to pain or pleasure or the sentiment of justice. Meteorological journals or associations and meteorological progress in general will have to be prosecuted in the future as in the past by the sacrifice—say rather, by the devotion—of time and money and personal energies quite independent of the utilitarian aspects of the results that have been or will be attained.

In order that an American meteorological association should prosper with as little expense and friction as possible, it would be best to have but one meeting annually, at the time and place of the August meeting of the American Association for the Advancement of Science. This annual meeting need only occupy a part of one day, leaving the members free to attend all meetings of the general association. Its time need not be taken up with the discussion of scientific details that can be referred to the physical, geographical, and other sections of the Association, but it may be profitably given to the consideration of matters of business bearing on the promotion of the general interests of this special branch of science. The special annual meetings of several societies are now held under the shadow of the general American Association.

#### NOTES FROM THE REPORTS OF STATE SECTIONS.

##### ALABAMA.

Mr. A. M. Valerio, voluntary observer at Daphne, describes the smudge invented by the Meacham Bros., of Riverside, Cal., quoting from the Alabama report of April, 1897:

The system is very simple. A piece of ordinary wire screen 4 feet square is fastened at the corners to four stakes set in the ground. Six inches in thickness of wet leaves or straw is placed on the screen, with a can of crude petroleum underneath. When the oil is ignited a dense white smoke arises, which soon fills the orchard, and so heavy that it does not rise much above the tree tops. There is an entire absence of sooty smoke which, in experiments in years gone by, proved objectionable because it rendered the fruit unfit for use, but in its stead is a white smoke. It is shown that twenty of these screen baskets are ample for a 10-acre orchard.

##### COLORADO.

From the special reports on snowfall the Section Director, F. H. Brandenburg, makes the following summary:

The majority of the reports show that the snowfall during February was generally less than a foot, and, being very light, made little if any addition to the stock of snow at great altitudes, at best only making good the loss by evaporation. In the parks and hills of less elevation the high temperatures and bright sunshine caused not only a disappearance of the current fall, but of considerable old snow as well. A comparison of the averages for February, 1897, with current averages shows that the amount of snow on the ground in the parks and hills is about one-fourth as much as a year ago, and that on the highest ranges the depth is less than one-half that reported last year.

##### MARYLAND.

Mr. E. G. Kinsell, voluntary observer at Green Spring Furnace, Washington County, about 500 feet above sea level, gives an account of one of the heaviest local rainfalls. It occurred apparently on the 9th of August, 1887. It had been an exceedingly hot day and at about 5 p. m. dark storm clouds began to gather. About 6 p. m. it began raining heavily and so continued without intermission until 9:30 p. m. No rain gauge was at hand, but the water collected in buckets and barrels indicated a rainfall of 12 to 14 inches

during that interval, both at Green Spring Furnace and at a point 2 miles north of it. This rainfall was confined to very narrow limits, covering an area that extended 4 or 5 miles from east to west and about 5 miles north and south. There was no wind whatever during the rain. Of course a great amount of damage was done within that area which is a few miles north of the Potomac River and the Chesapeake and Ohio Canal.

##### MONTANA.

The name of the station Hogan has been changed to Dearborn Canyon because its location at the base of the main range of the Rocky Mountains and in the mouth of the Canyon causes its climate to be much more like that of the station known by the same name than like that of the post office at Hogan, which is 13 miles distant.

On January 31 the observer at Greatfalls, Cascade County, recorded a series of hot winds in the south and southwest between 11:30 a. m. and 1:45 p. m., during which the temperatures rose to 58° or 71°, according to locality. The same hot wind was experienced over a narrow region, including Fort Benton in Choteau County and Fort Logan in Meagher County. The comparison of records at adjacent stations shows that the maximum temperature of 64° for January, reported by the Greatfalls observer, was, therefore, not an error, but the record of a fehn wind. The observer states:

Strange as it may seem, the "ranges," 20 miles distant, have been covered with ice and snow during the past months, but within that distance the ground around this locality is bare of snow and frozen only to a slight depth.

##### MINNESOTA AND NEBRASKA.

In both these reports we find extracts from a lecture by Dr. J. G. Macpherson on the formation of dew, as published in Symons' Monthly Meteorological Magazine, for May, 1897. Mr. Macpherson's explanations refer entirely to the dew observed on grass and other plants near the ground, and he correctly shows that this has been condensed so soon after its diffusion upward from the soil, that we may properly say that the water which forms the dew rises from the ground. But all the vapor in the whole atmosphere has risen either from the ground or from the ocean, and in general, whether dew is deposited on the grass or on the house tops or the mountain tops, it must be formed from vapor that originally rose from the earth or ocean. It conveys a wrong impression to say the dew does not fall from the air, for it certainly is condensed from the air upon cold surfaces. It is precipitation in the technical meteorological usage of that word, but does not fall like rain, in fact, it may be said to rise if it is found on the under side of a cold surface. The drops of sap that exude from the tips of many leaves are, of course not dew, but from their resemblance to it are called "false dew." Any attempt to measure the true quantity of dew must avoid including this exudation.

##### WISCONSIN.

Mr. Wilson gives a special chart and description of the exceptionally severe snowstorm of Saturday, February 19, and Sunday, the 20th. The heaviest snowfall occurred along the eastern and southern borders of the State; the fall at Milwaukee exceeded 24 inches and the drifts were from 10 to 15 feet deep. The timely warnings furnished by the Weather Bureau enabled railroad officials to make ample preparations. The center of the storm passed south of Wisconsin, and heavy northeast winds backing to north prevailed at Milwaukee for fifty-two hours.

#### THE SEMAQUIR.

The semaquir is said to be a curious stone found in Finland that turns black shortly before the approach of rain, but in fine dry weather it is mottled dark and white. Chem-